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SCIENCE AND TECHNOLOGY

No. 196

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TIBET SCIENTISTS, TECHNICIANS TO BE HONORED

OW100311 Beijing XINHUA in English 0101 GMT 10 Apr 83

[Text] Lhasa, 10 Apr (XINHUA)--A spokesman for the Tibet Autonomous Regional People's Government gave a news briefing yesterday to announce that scientists and technicians in the region will be given preferential treatment beginning in May.

Scientists and technicians of all nationalities engaged in engineering, agriculture and animal husbandry, public health, education and scientific research will be given pay raises, longer vacations, a better supply of food and housing as well as better employment opportunities for their children, he said.

As part of the effort to quicken the pace of building a united and prosperous new Tibet, the regional people's government will award medals and honor certificates to scientists and technicians who have been working for more than 10 years in the autonomous region.

Scientists and technicians from inland provinces are welcome to come to Tibet to work, according to the spokesman. Technicians who come to Tibet from inland provinces in the future will also enjoy preferential treatment as long as they pass an examination and work continuously in the region for 5 or more years.

The spokesman said that the regional government will also increase the pay of those minority intellectuals who have no degrees but have shown real ability in research on Tibet's cultural legacy, language and medicine.

CSO: 4010/52

BRIEFS

OUTSTANDING WOMEN SCIENTISTS, TECHNICIANS--Beijing, 7 Mar (XINHUA)--The proportion of women among senior Chinese scientists and engineers has grown from 7 percent in 1978 to 10.5 percent, according to a National Administrative Department of scientific and technical staff. Statistics indicate that there is a total of 9 million scientists and professional workers in the natural and social sciences in China, 2.95 million of whom--32.5 percent--are women. Among the country's over 70,000 people who hold titles of associate research fellow, associate professor, senior engineer, chief doctor, senior statistician and senior accountant, or even higher, 7,400 are women. They include aircraft designers, chemists, physicists, geologists and biologists. [Beijing XINHUA in English 1232 GMT 7 Mar 83]

SCIENTIFIC, TECHNICAL CENTER--Beijing, 21 Mar (XINHUA)—Beijing is planning to construct the nation's largest scientific and technical center. The project is sponsored by the State Planning Commission, the China National Scientific and Technical Association and the Beijing Municipal Scientific and Technical Association. The complex will be located just east of the military museum of the Chinese people's revolution in the western part of the capital. According to the design, the center will consist of a 25-story main building, and two 4-story galleries for academic activities and other auxiliary facilities, covering a total floor space of 50,000 square meters. It will accommodate 4,000 people at the same time. The design, by Zhu Jialu, an architect from the Beijing Construction and Design Institute, was approved after a number of modifications, and construction of the main building will begin within the year. [Text] [OW231033 Beijing XINHUA in English 0725 GMT 21 Mar 83]

CSO: 4010/52

NEW TECHNIQUE FOR TREATING COPPER ANODE MUD DEVELOPED

Kunming YUNNAN RIBAO in Chinese 19 Feb 83 p 1

[Article by Wang Shixin [3769 0013 2450]: "Yunnan Smelting Plant and Kunming Metallurgical Research Institute Develop a New Technique to Treat Copper Anode Mud; It Polluted the Environment Less; the Recovery Rate of Silver and Gold Improved"]

[Text] Engineers and technical personnel of the Yunnan Smelting Plant and the Kunming Metallurgical Research Institute jointly developed successfully a new technique to treat copper anode mud and realized visible results. Compared to the traditional and old technique of treating it by fire, the new technique produced 90 percent less environmental pollution, the direct recovery rate of silver improved 5 to 8 percent, and the direct recovery rate of gold improved 2 to 3 percent. These two indices both reached advanced national levels.

In the course of smelting copper, a lot of mud - copper anode mud is produced as a by-product. The Yunnan Smelting Plant produces over 250 tons of copper anode mud each year. The mud contains a fairly large amount of gold, silver and small amounts of other rare and precious metals. In the past, the Yunnan Smelting Plant, like other smelting plants in the nation, used the traditional method of treatment by fire. When using this old technique, the direct recovery rate of gold and silver was low, a lot of gold and silver was lost, and large amounts of lead changed to smoke and dust which polluted the environment. To change this situation, engineers and technical personnel of the Yunnan Smelting Plant and the Kunming Metallurgical Research Institute jointly developed a technical plan and conducted small scale tests. After several years of hard work, they overcame many technical difficulties which enabled this new technique to begin production officially. After production began, visible results were realized in environmental protection, in improving the direct recovery rate of gold and silver and in improving working conditions. Afterwards, they continued to make improvements and the direct recovery rate of gold and silver continued to improve. In recent years, the rate has reached the advanced national level.

The new technique of treating copper anode mud was awarded the science and technology award by the Ministry of Metallurgy. At present, related smelting plants in Tianjin, Beijing and Suzhou have popularized and used this new technique and have realized visible results.

9296
CSO: 4008/59

APPLIED SCIENCES

ELECTRONICS R&D IN FUJIAN ORIENTED TOWARD PRODUCTION

Fuzhou FUJIAN RIBAO in Chinese 22 Jan 83 p 2

[Article by He Kongxi [0149 1313 3556] and You Wensheng [3266 2429 3932]: "Scientific Research in Electronics Is Oriented Toward Building Up and Promoting Production; Provincial Electronic Technology Research Institute Has Developed 36 Scientific Research and Trial Production Projects Over the Past 3 Years; 9 Projects Have Reached Advanced National Levels, and 11 Projects Have Been Widely Applied in Economic Construction"]

[Text] The Fujian Provincial Electronic Technology Research Institute has taken as the direction of its scientific research work an orientation toward building up the economy and serving production. Over the past 3 years, it has developed 36 scientific research and trial-production projects. Nine of them have reached advanced national levels, 11 have been widely applied in economic construction, and 4 others are being technically evaluated.

From the time this institute was founded at the end of 1979 to the present, it has had a staff of fewer than 100 scientific research personnel. They are enthusiastic about the national economic buildup of the motherland, they have actively begun to work, and their microcomputer technology is advanced and widely applied. To solve the needs of technical progress of scientific research of schools and industries, and of mines and enterprises, that institute imported key parts, did its own design work, and exerted efforts to overcome difficulties, and after half a year it developed the high-performance, low-cost Z80 single-board computer. After evaluation, it actively assembled 200 units. Taking into account the demands and opinions of users, that institute made improvements this year and developed a new model, the μC-Z80 single-board computer. Its internal memory capacity was increased eightfold over that of the DBJ-Z80, and the number of interfaces for peripherals was nearly doubled. The structure is more versatile. One machine has many uses and is profoundly wlecomed by users. The 350 assembled units sold very quickly. The institute also developed μC-TV television frequency display interface board that can connect the machine directly to ordinary television sets, and μC-AD analog-digital board that can test, measure, process, and automatically control analog data concerning temperature, pressure, and flow. Thus, the range of application of the microcomputer has been greatly enlarged. For several years, that institute has provided various types of applied electronic products for industrial and mining enterprises, electric power departments, transportation, post and telecommunications, geological departments, scientific research departments and schools in 28 provinces, cities, and autonomous regions.

In scientific research work, that institute has insisted on the principle of "importation, assimilation, and innovation" and on developing products needed in our nation's economic buildup, based on our nation's actual situation. Computer data processing systems generally use foreign-language processing and display. This is very inconvenient for practical use in our nation. There is a general demand for theimplementing of a "Chinese system." That institute cooperated with the scientific research personnel of Beijing University, and in less than 1 year they developed a "multi-user Chinese-character data processing system" with our nation's characteristics. This innovative product was praised by the nation's leaders and experts and has been included as one of the nation's "Chinese character systems" products. After a voice synthesizer was added to the product at the end of last year, it was displayed at the international exhibition and sales show sponsored by Hong Kong. The product was widely praised by computer experts from various nations. That instutute has also bravely made other innovations and has developed our nation's first daisy-wheel teletypewriter controlled by a microprocessor, the MCS-48 single-chip microprocessor, an ultraviolet dim-light television, a radio-controlled dim-light monitoring system, X-ray television, and special applications television. They have filled in some gaps in our nation's electronic products.

The Provincial Electronic Technology Research Institute paid a lot of attention in its scientific research work to the economic benefits of research projects. Feasibility was rigorously proven and conscientious budgeting was carried out, from the selection of topics to the drawing up of plans. Those projects were selected that were urgently needed by the nation, that required less investment, that had a short period of development, and that could utilize as many spare parts manufactured domestically as possible. In overcoming difficulties, that institute checked the quality at each level, carefully controlled everything, and reduced costs as much as possible. In marketing, the products were sold at a small profit to reduce the burden on users. At the same time, within its ability, it held technical training classes and taught the application of new technologies more than 700 times. This enabled the products that were developed to be quickly applied in production, to develop their gains, and to promote technical progress in economic construction. That institute realized a definite profit and filled the covvers of scientific research funds. For 3 years, this research institute submitted nearly 200,000 yuan in taxes to the state and armed and equipped itself with three computer systems, a computer development system with very strong functions, several microcomputer systems and Chinese-character systems; it purchased instruments and equipment and special equipment; and it established a strong material foundation for the continued future development of new electronic products.

9296
CSO: 4008/60

OPTICAL THEODOLITE FOR MISSILE TRACKING DESCRIBED

Beijing HANGKONG ZHISHI [AEROSPACE KNOWLEDGE MAGAZINE] in Chinese No 3, Mar 83 p 15

[Article by Wei Kun [4850 0981: "Precision Optical Instruments for Missile Tracking"]

[Text] In the December, 1982 issue of this journal, one of the articles reported the successful test of China's sea-launched rocket; the article also carried two radio photos, one of which was the "flight trajectory of the rocket recorded by an optical movie theodolite designed for missile tracking."

This type of missile-tracking theodolite has been undergoing continuous improvement in conjunction with the development of flight vehicles. It has been used to measure and monitor the trajectories of rockets and missiles; it can also be used to verify the performance of radars and other tracking instruments. In general, a flight vehicle is tracked and photographed simultaneously by two or more of these instruments; the films from all instruments are analyzed and computations are carried out to determine the spatial coordinates and related parameters of motion of the vehicle.

I. The optical section, or the head. This section can be further divided into the following components: 1) the main telescope and its bearing system, which is used to aim at the flight vehicle and to produce images; 2) the azimuth and elevation angle measuring system, in which the azimuth angle can be measured to 360° in either clockwise or counterclockwise direction, and the elevation angle can be measured from -2° to 182° or even higher; 3) the camera, which generally uses standard 35 mm films, and has a film capacity of 120 m; the films are processed, copied, and edited for movie projection; 4) the electronic frame counter, which numbers and orders the photographs for subsequent data processing; 5) the power source and control section, which converts the frequency, voltage, and current of the power source to the required values; 6) real-time output device, which transmits the recorded data in real time to the computer center; and 7) the azimuth and elevation aiming telescope.

II. The servo section, or the tracking drive-control section. It includes the manual control mechanism, the control amplifier, the photography amplifier tracking instrument, and the drive mechanism. This section can operate either in a manual tracking mode, or in an automatic tracking mode using infrared or television systems. The infrared system, which is commonly used today, uses the wide field of view (for example, a theodolite imported from France has a wide field of view of 4°) for search, and the narrow field of view (only 1°) for acquisition and track.

III. The support section, or the base. This section is anchored to the ground through the foundation.

IV. The power supply and distribution section. The main function of this section is to transmit the power from the generator to the camera, the servo system, and the illumination system to meet various power requirements.

In addition, the theodolite also has a foundation and a protective dome. It can be seen from the above description that the theodolite is a combined product of optics, mechanics, and electricity.

Under the direction of the Chinese Academy of Sciences and the National Defense Scientific and Technological Commission, members of various research institutes and factories in Changchun, Shengyang, Shanghai, and Beijing have devoted their efforts in designing, drafting, and manufacturing in order to meet the needs of China's missile development program. In 1976, a new theodolite designed to measure the parameters of motion of missiles was developed for the first time in this country. This laid the foundation for the successful completion of the sea-launched missile test.

3012
CSO: 4008/74

APPLIED SCIENCES

SALVAGED HELICOPTER ROTOR BLADES USED AS WINDMILL

Beijing HANGKONG ZHISHI [AEROSPACE KNOWLEDGE MAGAZINE] in Chinese No 3, Mar 83 pp 18-19

[Article by Liang Shiyuan [2733 1102 0337]: Salvaged Helicopter Rotor Blades and Windpower Stations"]

[Excerpt] China is located in the southeast part of the Asian Continent, where the trade winds provide an abundant source of wind energy. For example, in the northwest plateau, the Neimonggol region, and along the southeastern shores and off-shore islands, the average wind speed is approximately 4 m/sec; at Shengsi of Zhejiang province and Pingtan of Fujian province, the average wind speed in 7.1-7.3 m/sec; hence, this region is ideal for developing wind energy. In recent years, significant progress has been made in this country in the technology of windpower generation. Specifically, over a dozen different types of wind-powered generators in the hundred-watt, kilo-watt, or even ten-kilo-watt class have been built; these generators include both horizontal and vertical axle designs. The hundred-watt generators have been improved to the point that they have proved to be technically feasible and are being used on ranches in the Neimonggol region. According to partial statistics, around 100 wind-powered generators are currently in service to provide daily electricity needs to the ranchers for lighting, television, and radio. As the standard of living of the ranchers improves, the demand for electricity increases considerably, and hopefully more and better wind-powered generators will be built to satisfy their needs. In Zhejizng and Fujian provinces, 10 kw wind-powered generators were built from the beginning to take advantage of the wind resources in that region. The earliest design of a 18 is generator was moved to the Shengsi island in 1977 and has been operating for over 5,000 hours. It has also withstood many assaults by typhoons, proving that its mechanical strength and performance are satisfactory. Subsequently, a number of 40 kw and 55 kw wind-powered generators have been built and installed in the field. Some of them are already in operation; others are ready for technical certification. These wind-powered generators all share a common feature, i.e., they use salvaged helicopter rotor blades for power generation.

The selection of generator power output is based on the local wind velocity. Selection of a proper windmill is also important because it directly affects the efficiency of converting wind energy into mechanical energy. The diameter of the windmill is related to the generator power output. A 30-m blade with an efficiency of 35 percent and energy density of 500 watts/m^2 can produce an effective power of approximately 100 kw; while a 100-m blade can produce an effective power as high as 1,000 kw. For this reason, the diameters of most windmill designs in foreign countries are between 30 m and 100 m. Of course larger diameter will present certain difficulties in material selection and in processing the blade.

In this country, most of the wind-powered generators have blades smaller than 2 m in diameter; a small number have blade diameters of 4 m, 5 m, and 6 m. Most larger blades are made from salvaged helicopter rotor blades.

We know that helicopter rotor blades must be retired after a specified period of service. As a result, a large number of retired rotor blades are stored in warehouses as waste materials. Whether these blades can be utilized is a question that has attracted much attention and has become a topic for study. We have carefully inspected the rotor blades installed on the 18 kw wind-powered generator and decided to use it on the 40 kw and 55 kw generators. Based on the favorable operating results of these two generators, this experiment has proven to be a successful one.

It is estimated that if all the retire helicopter rotor blades are used on 50 kw wind-powered generators, the total generating capacity can reach 100,000 kw; even if only half of these blades are used, the total generating capacity would still be 50,000 kw, which is not an insignificant figure.

To use the rotor blade as a windmill, one must address the problem of wind energy utilization factor. The rotor blade on a helicopter is driven by an engine; whereas on a wind-powered generator the blade is used to convert wind energy into mechanical energy which turns the generator to produce electricity. Clearly, it is expected to have a lower wind energy utilization factor than a blade specially designed for wind-powered generators. For example, the blade of a high speed wind-powered generator typically has a wind energy utilization factor of 0.4, whereas a helicopter rotor blade has a wind energy utilization factor of only 0.2. Although this is an important problem, a more important issue for existing wind-powered generators is reliability, endurance, and the ability to provide continuous power. Based on actual experience with wind-powered generators described in the last section, it has been shown that the helicopter rotor blades are quite reliable. It is believed that the problem of low wind energy utilization factor can be solved if enough efforts are devoted to it.

The main advantage of using retired helicopter rotor blades is the salvaging of waste materials. A 19-m fiberglas blade designed for a 40 kw wind-powered generator would cost 30,000 yuan. If a salvaged rotor blade is used, only a nominal cost would be required to compensate for the waste material. In this manner, waste material gets utilized, and raw material is saved; two birds are killed with one stone.

3012
CSO: 4008/74

BRIEFS

HIGH TEMPERATURE MICROSCOPIC TELEVISION--Recently the Naval Second Artillery Academy's research personnel assembled a "high temperature microscopic television set" for the Anshan Iron and Steel Institute. In the past, the Anshan Iron and Steel Institute had to limit only one person to observe the inner structural changes of iron and steel under high temperature and was unable to record the changes instantaneously. For this reason, the institute in March this year solicited the help of the department concerned of the Navy's Second Artillery Academy. Research personnel of the academy needed only 10-odd days to successfully install the "high temperature microscopic television." Application evaluation tests showed that this piece of equipment is excellent in definition and high in reliability. It not only reduces the labor intensity of the monitor, but also enables many research personnel to observe together the iron and steel structural changes and the entire phase transformation process under high temperature and make videotapes for data study as well. [Text] [Beijing GUANGMING RIBAO in Chinese 15 Apr 83 p 2]

CSO: 4008/90

LIFE SCIENCES

BRIEFS

HEPATITIS B VIRUS CLONE--Beijing, 18 Mar (XINHUA)--Chinese scientists have successfully cloned the ADW type hepatitis B virus (HBV) strain. The cloning was achieved by scientists at the Military Medical Sciences Academy of the Chinese People's Liberation Army, and the Norman Bethune International Peace Hospital. Last April, the scientists at the Shanghai Institute of Biochemistry for the first time cloned ADR type hepatitis B virus genome. There are four types of the virus: ADR, ADW, AYR and AYW. The hepatitis B virus most prevalent in China are ADR and ADW types. The genome cloning of the ADW type is helpful to the study of China's viral hepatitis molecular biology, diagnosis, prevention and cure of both hepatitis B and liver cancer, and the eventual production of hepatitis B vaccine through genetic engineering technology, according to the scientists. [Text] [Beijing XINHUA in English 0252 GMT 18 Mar 83]

CSO: 4010/53

Construction Machinery

AUTHOR: None

ORG: None

TITLE: "Successful Research and Manufacture of Wire Rope Aluminum Alloy Junction"

SOURCE: Tianjin GONGCHENG JIXIE [CONSTRUCTION MACHINERY AND EQUIPMENT] in Chinese No 3, Mar 83 p 61

ABSTRACT: In cooperation with Shenyang Construction Machinery Plant, Changsha Research Institute of Construction Machinery has succeeded in making a pressure-formed aluminum alloy junction for steel wire ropes. A technical certification conference organized by Liaoning Provincial Construction Committee, at the request of Urban and Rural Environmental Protection Ministry, was held in Shenyang most recently. After examining the documentation and conducting field tests, the conference concluded that the aluminum junction is structurally tighter than the traditional wire rope clip and is safe and reliable. It has a beautiful appearance; can guarantee to be as strong as the wire rope; and will save wire rope as well.

AUTHOR: GUO Zhanshan [6751 0594 1472]

ORG: None

TITLE: "The Design of ZL10 Loader Finalized and Certified"

SOURCE: Tianjin GONGCHENG JIXIE [CONSTRUCTION MACHINERY AND EQUIPMENT] in Chinese No 3, Mar 83 p 61

ABSTRACT: The ZL10 loader, one of the ZL series of loaders of the Ministry of Machine Industry, was jointly designed by Tianjin Research Institute of Construction Machinery Ministry of Machine Industry, Chengdu Construction Machinery Plant, and Yantai Construction Machinery Plant. The prototype was made by Chengdu Construction Machinery Plant. The Sichuan Provincial Bureau of Machine Industry, at the request of the Bureau of Heavy Mining Machines Ministry of Machine Industry, organized the technical certification conference on 21-27 Dec 82 in Chengdu City, which was attended by representatives of 35 units of users, manufacturers, research institutes, and schools of higher education. The conference listened to reports of the prototype design, 1000 small industrial experiments, property tests, and 1000km experimental ope tions,and concluded that the machine is reasonably designed, especially the adoption of wide tires, which raise the property of the entire machine and enlarge the scope of its applications. Its major property parameters were judged to be equal or close to the level of similar products made in foreign countries. It was approved for small batch production.

6248
CSO: 4009/122

Diesel Engines

AUTHOR: ZU Zengmin [4371 1073 2404]

ORG: Beijing Diesel Engine Service Section

TITLE: "Determination of Water Leak of the Cylinder Cover of the 121804 Diesel Locomotive"

SOURCE: Dalian NEIRAN JICHE [DIESEL LOCOMOTIVE] in Chinese No 2, 15 Feb 83 p 48

ABSTRACT: Due to fissures in the 121804 diesel engine cylinder cover caused by corrosion, the problem of water leak occurs frequently to Dongfanghong No 2, No 3, and No 5 types of diesel locomotives. When the diesel engine is in operation, the pressure and temperature of the burning gas inside a cylinder are higher than those of the cooling water and the water will not flow into the cylinder. After the engine stops and cools down, the water will flow into the cylinder even though the fissures too small to be seen by the naked eye. If the diesel engine is difficult to start but there is no black smoke and the temperature, the diesel oil, the machine oil, and the battery are all found to be normal, then there may be water in a cylinder to stop the movement of the piston. If a cylinder has water in it, the point compression stops should be about 10° - 40° ahead of the indicator on the locomotive. This is the way to find the problem cylinder.

6168
CSO: 4009/121

Heat Treatment Technology

AUTHOR: WU Lunzhong [0702 6544 0022]

ORG: Shanghai Municipal Research Academy of Machine and Electrical Power Design

TITLE: "Preliminary Inquiry Into Reconstructing Heat Treatment Technology in the Machine Industry"

SOURCE: Beijing JINSHU RECHULI [HEAT TREATMENT OF METALS] in Chinese No 2, 25 Feb 83 pp 42-44

ABSTRACT: From many years of experiences and lessons learned from the work of designing heat treatment machine shops of machine factories and through the understandings of related conditions and problems, the author proposes his opinions regarding the technical reform of the heat treatment process in the machine industry of Shanghai. His proposals are explained under the headings of: (1) Organize heat treatment into a specialty production to raise the economic benefit; (2) Provide technical manpower; (3) Strengthen quality management; (4) Improve commonly used work processes; (5) Treat and control 3 wastes to protect the environment; (6) Carry out researches on product designing, materials selection, and heat treatment conditions; (7) Study and extent new work processes; (8) Study and apply new work process experimental facilities; (9) Produce auxiliary materials used specially in heat treatment in special places; (10) Raise the understanding of the importance of heat treatment and strengthen the leadership of the heat treatment industry.

AUTHOR: None

ORG: Secretariat of China Society of Mechanical Engineering Heat Treatment Society

TITLE: "Summary of the Third Annual National Conference of Heat Treatment"

SOURCE: Beijing JINSHU RECHULI [HEAT TREATMENT OF METALS] in Chinese No 2, 26 Feb 83 pp 48-51

ABSTRACT: The Third Annual National Heat Treatment Conference of the Heat Treatment Society China Society of Mechanical Engineering was held on 15-20 Nov in Lintong of Shaanxi and attended by 150 delegates of branch societies of provinces, cities, and autonomous regions all over the country. Papers delivered and discussed are summarized under the headings of: (1) International energy sources and their application in heat treatment; (2) Contribution of physics and metallurgy to heat treatment practices; (3) Chemical heat treatment of austenitic state; (4) Action of rare earth elements in the steel in heat treatment; (5) Controlled atmosphere; (6) Chemical heat treatment of ferrite state; (7) Application of high energy density heating in heat treatment; (8) Process of quality control in heat treatment.

6248
CSO: 4009/131

AUTHOR: YANG Yuli [2799 3022 7787]

ORG: Standardization Office, Research Institute of Hoist and Conveyance Machines

TITLE: "Standardization Conference of the Hoist and Conveyance Machinery Industry"

SOURCE: Beijing QIZHONG YUNSHU JIXIE [HOISTS AND CONVEYANCES] in Chinese No 3, 6 Mar 83 p 63

ABSTRACT: The Standardization Conference of the Hoist and Conveyance Machinery Industry was held in Beidaihe on 20-25 Sep 82 and attended by 56 delegates of 45 plant and research institutes. Science and Technology Division of the Ministry and the National Bureau of Standards also sent officials to the conference to provide guidance. Regulations, policies, and methods relating to standardization work were introduced. The delegates agreed unanimously that the adoption of international standards is an extremely important policy for vitalizing China's machine industry. In the hoist and conveyance industry, standardization of large quantity products, such as bridge cranes, belt conveyors, motorized pulleys, etc., export products, such as hand operated pulleys, hoisting jacks, etc., and basic components, such as hangers, speed reducers, cone rotor electrical motors, buckets, etc. should be emphasized first. With respect to standardization of technical indices, attention should first be given to safety standards, parameter standards, work process standards, and standards of inspection methods and regulations. The 1983-85 Standardization Plan (Draft was revised. The 1983 standardization items were proposed and preliminary arrangements for these items were made.

6248
CSO: 4009/127

Hydraulics, Pneumatics

AUTHOR: ZHANG Limin [1728 4539 2404]

ORG: None

TITLE: "The BBXQ-16 Cycloidal Impeller Pump Underwent Technical Certification"

SOURCE: Beijing YEYA YU QIDONG [HYDRAULICS AND PNEUMATICS] in Chinese No 1, 15 Mar 83 p 14

ABSTRACT: The technical certification conference, presided by Nanjing Municipal Bureau of Machine Industry, for examining the BBXQ-16 cycloidal impeller pump made by the Nanjing Hydraulic Devices Plant No 3,was held in Nanjing on 26 Dec 82 and participated by Research Institute of Automation Ministry of Machine Industry, Jiangsu Provincial Research Institute of Machines, Shanghai Jiaotong University, Nanjing College of Aviation, East China College of Engineering, Northeast Huzhong Bureau of Forestry, Beijing Engineering Machinery Company, etc. The delegates examined the technical documentation and tested and experimented the major properties and parameters of the pump against the standards. All agreed the pump has met the design requirements and should be produced. As users are urgently in need of these pumps, the delegates praised Nanjing Hydrualic Devices Plant No 3 for its successful research to produce the pump within a short period of 6 months. The major parameters of the pump have reached the level of products made in foreign country. Its production will save foreign exchange for the State.

6248
CSO: 4009/125

Internal Combustion Engines

AUTHOR: None

ORG: None

TITLE: "Joint Conference of China Society of Internal Combustion Engine held in Shiyan City of Hubei Province"

SOURCE: Shanghai NEIRANJI GONGCHENG [CHINESE INTERNAL COMBUSTION ENGINE ENGINEERIN in Chinese No 1, 15 Mar 83 p 24

ABSTRACT: A joint conference of the Energy Conservation, Burn, and Purification Specialty Committee, the Intermediate and Small Power Diesel Engines Specialty Committee, the Petrol Engine and Gas Engine Specialty Committee, the Motor Group of the Motorized Vehicle Engineering Society, and the Hubei Provincial and Wuhan City Internal Combustion Engine Societies of China Internal Combustion Engine Society was held in Shiyan City of Hubei from 27 Oct to 1 Nov, at the Motorized Vehicle Plan No 2. Participants included 230 professors, specialists, engineers, internal combustion workers, etc. coming from all over the country. The conference received nearly 90 papers. Discussions of these papers, after their delivery, were conducted under a friendly and academic atmosphere, with everyone expressing different opinion fully without interjecting other factors injurious to personal relationship. The various specialty committees and local societies also discussed separately their future activity plans. Preparation work for the Nov 83 Annual Conference of China Motorized Vehicle Engineering Society proceeded. The delegates also viewed the equipment and the production processes of the Motorized Vehicle Plant No 2 which is a sort of epitome of China's machine industry.

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SHI Yipu [4258 0001 3877]

ORG: None

TITLE: "Pressurized Diesel Engine of 6952Q High Altitude Vehicles Underwent Certification"

SOURCE: Shanghai NEIRANJI GONGCHENG [CHINESE INTERNAL COMBUSTION ENGINE ENGINEERING in Chinese No 1, 15 Mar 83 p 24

ABSTRACT: The 6952Q pressurized diesel engine is a new product of Qinghai Diesel Engine Plant to satisfy the needs for 5-ton vehicles on the plateau. Under the conditions of 2000m in elevation and 20°C in temperature, the engine's 15-minute power is 120PS/2800rpm; the maximum torque $\geq$ 33kgt·m/2000rpm; the total load-speed specific curve minimum fuel consumption rate $\leq$ 185g/PS·h (standard work condition); and the total weight of the engine 460kg. Requested by Bureau of Agricultural Machinery Industry, Ministry of Machine Industry, Qinghai Provincial Economic Committee called a certification conference at Qinghai Diesel Engine Plant late in Nov 82; 78 delegate of 35 research, production, and user units attended. After examining the drawings and technical documentation and testing the engine's major property indices and the useful life of major parts, the delegates approved it for small batch production

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CSO: 4009/126

Mining Machinery

AUTHOR: None

ORG: None

TITLE: "Research and Manufacture of TP1-4 Disk Brake Succeeded at Luoyang Mining Machinery Research Institute"

SOURCE: Luoyang KUANGSHAN JIXIE [MINING MACHINERY] in Chinese No 2, 83 p 33

ABSTRACT: The disk brake currently being used with the mining elevator has poor sealing property. The problem of oil leak is very bad to cause inconvenience for both production and safety. In order to resolve this problem, Luoyang Mining Machinery Research Institute studied and made the TP1-4 disk brake. Industrial tests have proved that the structure of this new brake is reasonably designed to cause the useful life of the sealing component to be more than 5 times longer. The repair time and expenditure will thus be reduced and it will also meet the safe operation regulations to create a favorable condition for the development of coal energy resources.

AUTHOR: WANG Youyi [3769 2589 4135]

ORG: Luoyang Mining Machinery Research Institute

TITLE: "Analysis and Prevention of Accidents Caused by Incline Shaft Lift Safety Brakes"

SOURCE: Luoyang KUANGSHAN JIXIE [MINING MACHINERY] in Chinese No 2, 83 p 34

ABSTRACT: The lift of an incline shaft, especially incline shafts of an angle less than 20°, must have a safety brake system to stop the elevator quickly when it is operating at a high speed under such conditions as a sudden cut-off of electrical power, electrical motor overload, etc. As a rule, this safety measure should be able to prevent accidents or to stop an accident from magnifying. On the contrary, in some mines, the safety brake caused the wire rope to break and the heavily loaded container to dash to the bottom of the shaft. For example, a certain mine in Neimonggu had a main and a secondary shaft, each at an angle of 10°. When the elevators of both were operating with full loads and in a top speed, the power supply of the entire mine was suddenly cut off to start the safety brakes. The wire lines of both elevators broke and the containers (18 cars in the main shaft) all rushed to the bottom to create a loss of 70,000 yuan. Similar accidents had occurred in many mines. This paper analyzes the shock force of the containers on the wire line, the force of loosening the rope by the braking action, and the moment of force of the brake, and proposes several viewpoints and countermeasures.

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Nonmetallic Ores

AUTHOR: TANG Chuangquan [3282 0482 5425]

ORG: Danba Mica Mine

TITLE: "Understandings Concerning Several Problems of Nonmetallic Mines of Key Construction Materials"

SOURCE: Suzhou FEIJINSHU KUANG [NONMETALLIC ORES] in Chinese No 1, 28 Feb 83 pp 39-40, 21

ABSTRACT: The author participated in the late 1981 survey of the geological resources and current condition of mining of 13 mines of 6 types of ores, including asbestos, gypsum, graphite, talc, and bentonite, carried out by the Construction Key Materials Nonmetallic Ores Geological Resources Survey Group. The geological reserves of the 6 ores were found to be considerable, making China the first or the second in the world but several problems exist with respect to production. The problems discussed in the paper include: confused management system, insufficient prospecting, overemphasizing current profit, lack of coordination between mining and marketing, products, especially graphite, priced too low, poor relationship between the mines and the local inhabitants. Methods of correcting these problems in order to develop ore production properly are suggested.

AUTHOR: None

ORG: Conference Secretariat

TITLE: "National Nonmetallic Ores Mining Technology Exchange Conference"

SOURCE: Suzhou FEIJINSHU KUANG [NONMETALLIC ORES] in Chinese No 1, 28 Feb 83 p 54

ABSTRACT: The National Nonmetallic Ores Mining Technology Conference, jointly sponsored by the Nonmetallic Ores Specialty Committee of China Society of Silicates and the Hubei Provincial Society of Silicates, was held in Wuhan City on 22-26 Dec 82. Participants included 113 delegates representing 59 units of metallurgy, chemical engineering, coal, geological teams of the railway system, producing mines, design academy and institutes, technological information agencies, universities, etc. The conference received 105 papers. Many valuable opinions were offered concerning ore mining techniques and ways of improving mining efficiency. The direction of effort for mining and utilizing low grade ores was also proposed. This conference was a preliminary attempt to provide the mines with direct consultation service by the society of silicates.

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AUTHOR: YANG Huajun [2799 0553 6511]

ORG: Research Institute of Scientific and Technical Information, Qiqihar City

TITLE: "Research and Manufacture of ZD-160 Lead Ingot Casting Machine a Success"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 1, 1983 p 44

ABSTRACT: For the purpose of satisfying the needs of the printing industry, improving the work efficiency of melting and casting lead ingots, reducing energy consumption, and minimizing environmental pollution, the scientists of the Qiqihar Municipal Research Institute of Scientific and Technical Information carried out repeated studies, before it succeeded in producing the ZD-160 lead igot casting machine to realize continuous and automatic process of melting, casting, and mold stripping of lead ingots. The entire work process is electrically and automatically controlled. The machine saves energy and manpower, improves the work efficiency and the ingot quality, reduces environmental pollution, and is favorable for the health of the workers. The machine has passed technical certification on 4 Nov 82. The institute is now preparing for its small batch production.

AUTHOR: LI Shanwu [2621 6365 2976]

ORG: None

TITLE: "A Miraculous Bloom on the Bank of Yalujiang: the Dandong Printing Plant"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 1, 1983 p 45

ABSTRACT: On 27 Sep 82, the author joined others in a tour of Dandong Printing Plant, located on the bank of Yalujiang, directly across the river from the Korean People's Republic. It had been the Chengwen Stationary, a private enterprise, before the liberation. After it was taken over by the Chinese people's government in 1947 and renamed Dandong Printing Plant in 1964, its development was extremely fast to become a comprehensive printing plant of many printing processes, including offset, relief, intaglio [photogravure], binding, etc. processes. The plant now has 1,035 workers and 119 major machines. The building covers an area of 4,500+ m^2. In 1981, it won first prize in the Liaoning Province Printing Plant Competition. Of the gross production income of the plant, 46.6 percent come from printing books and journals and 30.5 percent from packaging and decorating printed materials.

6248
CSO: 4009/130

AUTHOR: YI Wen [5042 2429]

ORG: None

TITLE: "China's First Microlitic Zinc Plate Shop Constructed and in Operation in Guangzhou"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 3, 1983 p 10

ABSTRACT: The construction of China's first microlitic zinc plate shop was complet It has been transferred to Guangzhou Zinc Plate Plant to join the production. Mic litic zinc plate, an important material in printing newspapers and magazines, was first successfully made in China by the plant; subsequently, it has also been successfully produced in Shanghai and Gansu. With the rapid development of science an technology, culture and education, printing and publications in China, the plant resolved to use the portion of its profit and some loan money as the capital, taking advantage of the expanded autonomy of enterprises, to attempt to construct a microlitic zinc plate machine shop. After a little more than one year's efforts, the shop, capable of producing 1,500 tons of microlitic zinc plates annually was in operation. Some new, modern, and advanced equipment and work processes are adopted to cause the quality of the products to be stable and reliable. The chemical composition, the etching property, the degree of flatness, and the smooth and brilliance indices have all reached the national standards. This shop can resolve the problem of national short supply of microlitic zinc plates and can also contribute to improving the level of zinc plate production technology in the country.

AUTHOR: LU Guoyun [7120 0948 0061]

ORG: None

TITLE: "Second Membership Conference of China Association of Printing Technology Held in Beijing"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 3, 1983 p 43

ABSTRACT: A capital membership conference of the China Association of Printing Technology was held in Beijing in the afternoon of 24 Feb 83 and attended by 1200+ persons related to the various printing plants in Beijing. The conference was chai ed by its deputy secretary DING Yitong [0002 0001 0681] who reported the work condition of 1982 and the key projects of 1983. He said that due to limitation of manpower, the association will regard the editing and publication of its journal ZHONGGUO YINSHUA as its important work. ZHONGGUO YINSHUA NIANJIAN [ANNALS OF CHINESE PRINTING] will be in a joint volume for 1981 and 82. The Chairman of the Association's Board of Directors, WANG Yi [3769 4135] briefly introduced the resolution of CPC and State's Council with respect to strengthening publication work. The resolution stresses the backwardness of printing industry in China, which is a well-known fact to the world and an expression of the backwardness of culture, education, and economic development, and makes concrete demands of reform and proposes concrete measures. WANG Yi hoped that all members will try to make the association better every year.

6248
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Silicon Rectifiers

AUTHOR: None

ORG: Department of Scientific Research

TITLE: "Extension of Research Result of Large Power, High Voltage Silicon Rectifier Produces Obvious Economic Benefits"

SOURCE: Wuhan HUAZHONG GONGXUEYUAN XUEBAO [JOURNAL OF HUAZONG (CENTRAL CHINA) UNIVERSITY OF SCIENCE AND TECHNOLOGY] in Chinese No 1, Feb 83 p 46

ABSTRACT: An agreement was reached in Jun 82 with the 3280 Transistor Plant of the Dalian Garrison Headquarters for the Semiconductor Teaching and Research Group of the university to train 9 technicians for the plant. During the training period, 298 silicon rectifiers were produced, with the voltage reaching as high as 9000v. Within 3 months after returning to their plant, these trainees made 3 batches of silicon chips. With the technique learned from the university, they reconstructed the original products of 2000 v silicon rectifiers of the plant to raise the voltage nearly 1000 v. Since then, Wuhan Steel Pipe Plant used the rectifiers produced by the Dalian 3280 Plant to reconstruct two of its 6 pipe welding lines. According to the report of the workers on 8 Nov 82, due to not using mercury thyratrons, the product value increased 37.3 percent and the profit increased 32.6 percent. The production quota of Wuhan Steel Pipe Plant was completed 2 months 7 days ahead of time. In a year's time, 40,000 kwh of electrical power may also be saved. The Dalian 3280 Plant is preparing to supply 7000 v high voltage rectifiers to be used in the 50 kw color television transmitter of the Central Television Broadcasting Station as well as to other organizations.

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